

Prepared by
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For
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***THE USE OF SELECTED DEICING
MATERIALS ON MICHIGAN ROADS:
Environmental and Economic Impacts***

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GLOSSARY

ABSORB, ABSORPTION The process of taking in and making part of an existent whole.

ADSORB, ADSORPTION The adhesion to the surface of solid bodies or liquids.

ANION A negatively charged ion.

ANOXIA A deficiency of oxygen.

AQUIFER A rock or sediment unit that contains groundwater.

BIOCHEMICAL OXYGEN DEMAND (BOD) The amount of dissolved oxygen consumed when a substance is biochemically degraded in an aquatic system.

BIOTA Terrestrial and aquatic flora and fauna.

CATION A positively charged ion.

CATION EXCHANGE CAPACITY (CEC) The ability of a cation to replace on a soil particle another cation of a weaker charge or smaller concentration.

CG-90 SURFACE SAVER A corrosion-inhibiting salt produced by Cargill that can be used as a road deicer.

CMA Calcium magnesium acetate, a deicing material produced by Chevron Chemical Company.

CMS-B Condensed molasses solids, a by-product of sugar beet processing, that can be used as a road deicer. Under development by Savannah Foods and Industries, Inc., as Motech, a patented product.

DENSITY STRATIFICATION Occurs when water laden with heavier ions enters a lake and settles to the lake bottom.

E-MILE Equivalent mile. Equals one mile of 24-foot-wide (two-lane) road surface.

EUTROPHICATION The aging process of a lake. Characterized by depletion of oxygen in lower depths, excessive growth of rooted plants and algae, a shift to species tolerant of low dissolved oxygen, and, in the extreme, impairment of swimming, boating, and fishing. Can be accelerated when nutrients entering the lake are increased.

EXOTHERMIC A chemical reaction that produces heat.

FATE The way in which a compound is chemically or biologically reconfigured when introduced into an environment and the ultimate destination of each element within a compound.

HYGROSCOPIC The ability to absorb and retain water.

INFILTRATION CAPACITY The quantity of water that can be absorbed.

ION A group of electrically charged atoms.

LOAD, LOADING The amount of an element or compound entering an environmental medium, such as a water body.

MOBILIZATION The release of an element or compound into the surrounding environment.

NONPOINT DISCHARGE Dispersed discharge, such as from runoff.

OSMOTIC STRESS Changes in cell water levels that adversely affect the growth of a plant. As dissolved solids increase outside cell walls (due to the uptake of elements from deicing materials), water is pumped out of the cell to compensate for the change in salinity.

OVERTURN The process involving the exchange, due to changes in water temperature, of a water body's upper layer with its deep water.

PERMEABLE Able to be infiltrated.

POINT DISCHARGE Concentrated discharge released from a single point, such as from a pipe.

PRECIPITATION An ion's reaction and combination with another ion, forming a particle.

PRIMARY DRINKING WATER STANDARD The maximum amount of a component allowable in drinking water; associated with human health risk. Established and enforceable by the federal government. Also called primary maximum containment level (PMCL).

SALT Road salt, or sodium chloride; the principal road deicer used by the Michigan Department of Transportation.

SCALING Flaking of a road surface.

SECONDARY DRINKING WATER STANDARD The maximum amount of a component desirable in drinking water; associated with aesthetics, e.g., taste. Established by the federal government but not enforceable. Also called secondary maximum containment level (SMCL).

SODIUM CHLORIDE See salt.

STEADY STATE The balance achieved when the concentration level of a chemical component entering and leaving a water body is the same.

TRANSPORT The manner by which an element or compound migrates in the environment.

TRUNK LINE Any state road under the jurisdiction of the Michigan Department of Transportation.

TURNOVER TIME The time required for a lake to reach a uniform concentration of a chemical input.

VERGLIMIT A patented deicing technology that incorporates calcium chloride pellets into bituminous concrete road surface.

WATER EXCHANGE RATE The amount of water entering and leaving a water body.